What Is Claimed Is:

1. A device (1) for measuring an angular movement in a vehicle steering system, comprising a shaft (3), which is rotationally mounted in a frame (2), and on which an element (4) axially displaceable in the direction of the shaft (3) is positioned; the axially displaceable element being connected to the shaft (3) via a geared connection (5) that converts the angular movement of the shaft (3) into a longitudinal movement; the axially displaceable element (4) being guided in an axial direction by a longitudinal guide (6) that is prestressed in the radial direction of the shaft (3); and comprising a detection device (7) that measures the longitudinal movement of the axially displaceable element (4); wherein a frame-side component (8) of the longitudinal guide (6) rests against the axially displaceable element (4) on first oblique surfaces (9, 9'), which run at an angle to each other and in the axial direction of the axially displaceable element (4); and the axially displaceable element (4) and the shaft (3) mesh without backlash via second oblique surfaces (10, 10') of the geared connection (5); the first oblique surfaces (9, 9') between the frame-side component (8) and the axially displaceable element (4), as well as the second oblique surfaces (10, 10') of the geared connection (5), have the same inclination directions with respect to each other.

2. The device (1) as recited in Claim 1, wherein the axially displaceable element is a nut (4), the shaft is a threaded spindle, in particular a steering spindle (4), and the frame-side component is a thrust piece (8), which radially presses the nut (4) onto the threaded spindle (4).

3. The device (1') as recited in Claim 1, wherein the axially displaceable element is a threaded nut (4); and the shaft is a threaded part (133), which is situated on a steering nut (128) that drives the recirculating ball screw (135) of a gear rack (129).

4. The device (1) as recited in one of Claims 1 through 3, wherein the contact of the frame-side component (8) with respect to the longitudinal guide (6) of the axially displaceable element (4) occurs on the first oblique surfaces (9, 9').

5. The device (1) as recited in one of Claims 1 through 4, wherein the first oblique surfaces (9') of the axially displaceable element (4) are part of a groove (11), which is on the axially displaceable element (4) and extends radially towards the shaft (3).

6. The device (1) as recited in one of the preceding claims, wherein both the first oblique surfaces (9, 9') and the second oblique surfaces (10, 10') have trapezoidal inclination directions.

7. The device (1) as recited in one of the preceding claims, in particular Claim 2 or 3, wherein the axially displaceable element (4) is formed around the shaft (3) in the shape of a ring or cylinder or polygon, and the geared connection (5) is a screw thread (12) between the shaft (3) and the axially displaceable element (4).

8. The device (1) as recited in Claim 7, wherein the screw thread (12) is a trapezoidal thread (13) having tip clearance.

9. The device (1) as recited in one of Claims 5 through 8, wherein the main portion of the radial extension of the frame-side component (8) of the longitudinal guide (6) projects into the groove (11) of the axially displaceable element (4).

10. The device (1) as recited in one of Claims 1 through 7, wherein to position the longitudinal guide (6) and the geared connection (5) in a backlash-free manner, the frame-side component (8) of the longitudinal guide (6) is prestressed in the radial direction, towards the shaft (3).

11. The device (1) as recited in one of the preceding claims, wherein the detection device (7) is made up of a transducer (14) positioned on the axially displaceable element (4) and a sensor (15), which communicates with the transducer and is on the frame (2) or the frame-side component (8) of the longitudinal guide (6).

12. The device (1) as recited in one of the preceding claims, wherein the detection device (7) is made up of a sensor (15) positioned on the axially displaceable element (4) and a transducer (14), which communicates with the sensor and is on the frame (2) or the frame-side component (8) of the longitudinal guide (6).

13. The device (1) as recited in one of Claims 11 or 12, wherein the sensor (15) is a magnetoresistive sensor (16), and the transducer (14) is a bar magnet (17) or an annular magnet.

14. The device (1) as recited in one of Claims 11 through 13, wherein the transducer (14) has a greater axial extension (18) than the structurally predetermined measuring range

of the longitudinal movement of the axially displaceable element (4).

15. The device (1) as recited in one of Claims 11 through 14, wherein several sensors (15) or several transducers (14) are positioned over the circumference and/or in the longitudinal direction of the axially displaceable element (4).

16. The device (1) as recited in one of the preceding claims, wherein the axially displaceable element (4) is situated on a steering shaft, and the detection device (7) measures the rotation of a steering handle.

17. The device (1) as recited in one of the preceding claims, wherein the axially displaceable element (4) is positioned on a shaft taking the form of a steering nut, and the detection device (7) measures the longitudinal movement of a gear rack.

18. A vehicle steering system having a device (1) for measuring an angular movement in the vehicle steering system, including a shaft (3), which is rotationally mounted in a frame (2), and on which an element (4) axially displaceable in the direction of the shaft (3) is positioned; the axially displaceable element being connected to the shaft (3) via a geared connection (5) that converts the angular movement of the shaft (3) into a longitudinal movement; the axially displaceable element (4) being guided in the axial direction by a longitudinal guide (6) that is prestressed in the radial direction of the shaft (3); and including a detection device (7) that measures the longitudinal movement of the axially displaceable element (4); wherein a frame-side component (8) of the longitudinal guide (6) rests against the

axially displaceable element (4) on first oblique surfaces (9, 9') that run at an angle to each other and in the axial direction of the axially displaceable element (4); and the axially displaceable element (4) and the shaft (3) mesh without backlash via second oblique surfaces (10, 10') of the geared connection (5); the first oblique surfaces (9, 9') between the frame-side component (8) and the axially displaceable element (4), as well as the second oblique surfaces (10, 10') of the geared connection (5), having the same inclination directions with respect to each other.